IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF DELAWARE

INLINE CONNECTION CORPORATION, Plaintiff, v. AOL TIME WARNER INCORPORATED, et al., Defendants.	)	C. A. No. 02-272-MPT
INLINE CONNECTION CORPORATION, Plaintiff, v. EARTHLINK, INC., Defendant.	)	C. A. No. 02-477-MPT

MEMORANDUM OPINION

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Wilmington, Delaware
October 14, 2004 (decided)
October 19, 2004 (revised)

Thynge, U.S. Magistrate Judge

I. INTRODUCTION

This is a patent infringement case. On April 12, 2002, Inline Communication Corporation ("Inline")[1] filed suit alleging infringement by AOL Time Warner Incorporated,[2] America Online, Inc.,[3] and EarthLink Inc.[4] (hereinafter "defendants") of four of its patents: U.S. Patent Nos. 5,844,596 ("the '596 patent"), 6,243,446 ("the '446 patent"), 6,542,585 ("the '585 patent"), and 6,236,718 ("the '718 patent") (collectively "the patents-in-suit").[5] Inline alleges defendants' Digital Subscriber Line products infringe claim 61 of the '596 patent, claims 1-6 of the 446 patent, claims 1, 2, 4, 8 and 9 of the '585 patent and claims 22, 24, 38 and 39 of the '718 patent.

The parties filed a Joint Submission Regarding Claim Construction[6] and briefing in support of their respective proposed definitions of certain disputed claim terms recited in the patents-in-suit.[7] Pursuant to *Markman v. Westview Instruments, Inc.*[8] and local practice, oral argument on the proper construction of the disputed claim terms was held

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[1] Inline is a Virginia corporation with its principal place of business in Virginia.

[2] AOL Time Warner Incorporated is a Delaware corporation with its principal place of business in New York

[3] America Online, Inc. is a Delaware corporation with its principal place of business in Virginia

[4] EarthLink Inc. is a Delaware corporation with its principal place of business in Georgia.

[5] The '596, '446, and the '585 patents are each continuations of a patent application filed July 14, 1989. The July 14, 1989 application issued as U.S. Patent No. 5,010,399 ("the '399 patent"), which is not asserted in this action. More specifically, the '585 patent is a continuation of the application that resulted in the '446 patent, which is a continuation of the application that resulted in the '596 patent. Throughout this opinion, the three patents may be referred to as the '596 line of patents as they each share a substantially identical written disclosure. The '718 patent is also a continuation of the patent application filed July 14, 1989, which resulted in the '399 patent and has a separate written disclosure.

Because the '596 line of patents each share a substantially identical written disclosure, citation to the '596 patent's written description in this opinion should be understood to refer to the same language in the written descriptions of the '446 patent and the '585 patent.

[6] D.I. 176.

[7] D.I. 187 (Defendants' Memorandum of Law on Claim Construction); D.I. 189 (Inline's Opening *Markman* Brief); D.I. 200 (Defendants' Response to Inline's Opening *Markman* Brief); D.I. 197 (Inline's Responsive *Markman* Brief).

[8] 52 F.3d 967 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996).

on August 28, 2003 (the "*Markman* hearing").[9] On January 27, 2004 the court issued a memorandum setting forth its construction of the disputed claim terms.[10]

On February 10, 2004, pursuant to Federal Rule of Civil Procedure 59(e) and District of Delaware Local Rule 7.1.5, plaintiff timely-filed a Motion for Reargument and/or Reconsideration of the Court's Construction of the Phase "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band," (the "Motion for Reconsideration")[11] arguing that the court's "construction conflicts with the patent specifications and is built on an inapplicable definition . . . ."[12] Defendants filed their opposition to Inline's motion on March 2, 2004.[13] This is the court's determination of that motion.

II. MOTIONS FOR RECONSIDERATION

Motions for reconsideration "are granted sparingly and only in limited circumstances."[14] Reconsideration can not be granted in circumstances where the movant simply "rehashes material and theories already briefed and decided."[15] Although not all of the arguments made in the Motion for Reconsideration were included in plaintiff's *Markman* briefing, each was raised at the *Markman* hearing. Because the

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[9] *See* D.I. 207 (Transcript of *Markman* hearing).

[10] *Inline Connection Corp. v. AOL Time Warner Inc.*, 302 F. Supp. 2d 307 (D. Del. 2004) (the "*Markman* Opinion"). Description of the inventions of the patents-in-suit are recited in the court's *Markman* Opinion, familiarity with which is assumed by the reader.

[11] D.I. 242. Although this court's Local Rules do not expressly recognize motions for reconsideration (Rule 7.1.5 addresses only motions for reargument), since the court ultimately determines it is necessary to reconsider and modify its prior claim construction, the court refer's to Inline's submission as the "Motion for Reconsideration" throughout this opinion.

[12] D.I. 242 at 1.

[13] D.I. 249.

[14] *BP Amoco Chem. Co. v. Sun Oil Co.*, 200 F. Supp. 2d 429, 432 (D. Del. 2002).

[15] *Id.* (quotation and citation omitted).

Motion for Reconsideration merely rehashes arguments already presented to the court, Inline's motion could be rejected on that ground alone.[16]

Upon review of the parties' prior *Markman* submissions, the transcript of the *Markman* hearing, and the competing arguments with respect to Inline's Motion for Reconsideration, however, the court determines that the particular circumstances of this case warrant a modification of the court's previous construction of "a high frequency band of frequencies above the highest frequency of the telephone voice band."

III. THE LAW OF PATENT CLAIM CONSTRUCTION

The patent claims define the scope of the rights afforded to the patentee under the patent, and the interpretation and construction of those claims is a matter of law to be determined by the court.[17]

When construing the claims, the court may consider "both intrinsic evidence (*e.g.,* the patent specification and file history) and extrinsic evidence (*e.g.,* expert testimony)."[18] The court must first examine "the intrinsic evidence of the record, *i.e.,* the

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[16] The court notes that the construction of "high frequency band" argued for by defendants at the *Markman* hearing was first set forth in their responsive *Markman* brief. Despite the fact that defendants' responsive *Markman* brief was filed a week prior to the *Markman* hearing, however, at that hearing plaintiff stated that "maybe I didn't read [defendants' responsive *Markman* brief] carefully enough," D.I. 207 at 264, and that plaintiff "didn't expect [defendants' proposed construction]." *Id.* at 276. The court is nonetheless sympathetic to Inline's complaint that at "the eleventh hour [defendants] chang[ed] a [proposed] definition . . . ." *Id.* at 264. The result of defendants' changed definition and plaintiff's less than fully-formed response to that change at the *Markman* hearing is that court's claim construction of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band" was made without the benefit of each party's full attention being directed to the arguments of the other. Unfortunately, these circumstances have delayed the progress of this case and unnecessarily caused additional expenditures of time and energy on the part of both the parties and the court.

[17] *Markman,* 52 F.3d at 970-71.

[18] *Vitronics Corp. v. Conceptronic, Inc.,* 90 F.3d 1576, 1582 (Fed. Cir.1996).

patent itself, including the claims, the specification and, if in evidence, the prosecution history."[19]

The starting point for the court's examination is the language of the disputed claim.

> In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves . . . . The terms used in the claims bear a "heavy presumption" that they mean what they say and have the ordinary meaning that would be attributed to those words by persons skilled in the relevant art. . . . [U]nless compelled otherwise, a court will give a claim term the full range of its ordinary meaning as understood by persons skilled in the relevant art. . . . Dictionaries, encyclopedias and treatises, publicly available at the time the patent is issued, are objective resources that serve as reliable sources of information on the established meanings that would have been attributed to the terms of the claims by those of skill in the art. . . . As resources and references to inform and aid courts and judges in the understanding of technology and terminology, it is entirely proper for both trial and appellate judges to consult these materials at any stage of a litigation, regardless of whether they have been offered by a party in evidence or not. Thus, categorizing them as 'extrinsic evidence' or even a 'special form of extrinsic evidence is misplaced and does not inform the analysis.[20]

After consulting relevant dictionaries to determine the ordinary meaning of disputed terms, the intrinsic record must always be analyzed "to determine whether the presumption of ordinary and customary meaning is rebutted . . . [such as when] the specification uses the words in a manner clearly inconsistent with the ordinary meaning reflected, for example, in a dictionary definition. In such a case, the inconsistent dictionary definition must be rejected."[21]

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[19] *Id.*

[20] *Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1201-03 (Fed. Cir. 2002) (internal citations and quotation omitted).

[21] *Id.* at 1204.

Only if there is still ambiguity as to the meaning of a claim after reviewing the intrinsic evidence should a court consider extrinsic evidence, such as expert or inventor testimony.[22] If the court does find it necessary to consider extrinsic evidence, however, that evidence may never be used "for the purpose of varying or contradicting the terms in the claims."[23]

IV. POSITIONS OF THE PARTIES

A. The Parties' Prior Positions Regarding Construction of the Phrase "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band"

In its *Markman* briefing and at the *Markman* hearing, Inline consistently argued that the disputed claim terms "a high frequency band of frequencies above the highest frequency of the telephone voice band," "high frequency band," and "high band of frequencies," recited in the '596 line of patents,[24] and that the disputed claim terms "a high band of frequencies above the highest frequency of the telephone voice band," "high frequency band," and "high band of frequencies," recited in the '718 patent,[25] should each be construed as "frequencies above the telephone voice band."[26]

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[22] *Vitronics,* 90 F.3d at 1584; *see also id.* at 1583 ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence."); *Bell & Howell Document Management Prods. Co. v. Alteck Sys.,* 132 F.2d 701, 706 (Fed. Cir. 1997) (Relying on extrinsic evidence to construe a claim is "proper only when the claim language remains genuinely ambiguous after consideration of the intrinsic evidence.").

[23] *Markman*, 52 F.3d at 981.

[24] *See, e.g.*, '596 patent, cl. 61; '446 patent, cl. 1, '585 patent, cl. 1.

[25] *See, e.g.*, '718 patent, cl. 22.

[26] *See, e.g.*, D.I. 189 at 10; D.I. 207 at 244 ("[A]ll of the claims of all of the patents refer to frequency above the telephone voice band."). Both parties argued at the *Markman* hearing that each of the disputed phrases quoted above (*i.e.*, those including "high frequency band" and "high band of frequencies") should be construed identically in all four of the patents-in-suit. *See Markman* Opinion, 302 F. Supp. 2d at 326 n86. Since each of the patents-in-suit are continuations of the same patent application, common construction of these terms could be proper. *See Arthur A. Collins, Inc. v. Northern Telecom Ltd.* 216 F.3d 1042, 1044 (Fed. Cir. 2000) (Because two patents "share[d] the same written description," and the second patent "is a continuation of" the first patent, the district court's "determin[ation] that a common construction of" a limitation in the claims of the two patents "was appropriate."). To avoid unnecessary

Defendants argued at the *Markman* hearing that the correct construction of "high frequency band" in each of the patents-in-suit is "any of the radio frequencies between 3 and 30 MHz."[27] As noted in the *Markman* Opinion, this construction was first recited in defendants' responsive *Markman* brief and was a change in the proposed construction offered by defendants in their opening *Markman* brief.[28] In their opening *Markman* brief, defendants argued that the proper construction of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band" as recited in the '596 line of patents is "the band of frequencies above 1 Mhz."[29] Defendants argued that the proper construction of "high band of frequencies above a telephone voice band" as recited in the '718 patent is "the band of frequencies above 6 MHz."[30]

In its *Markman* Opinion, the court construed "a high frequency band of frequencies above the highest frequency of the telephone voice band" to mean "frequencies above the telephone voice band between the range of 1 and 30 MHz."[31]

B. The Parties' Current Positions Regarding Construction of the Phrase "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band"

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repetition, the court's references to "high frequency band" in this opinion apply to each of the disputed phrases containing variations of this language.

[27] *Markman* Opinion, 302 F. Supp. 2d at 320. Megahertz is defined as "[o]ne million cycles per second, used esp. as a radio-frequency unit." *Webster's II New Riverside University Dictionary* 739 (1988). The correct abbreviation of megahertz is "MHz." The patents-in-suit and the parties' briefing sometimes abbreviates megahertz as "Mhz." In this opinion, the court uses the abbreviation "MHz" unless quoting language using the abbreviation "Mhz."

[28] *Markman* Opinion, 302 F. Supp. 2d at 320 n61.

[29] D.I. 187 at 43 (emphasis omitted).

[30] *Id.* at 45 (emphasis omitted).

[31] *Markman* Opinion, 302 F. Supp. 2d at 326. This construction was applicable to both the '596 line of patents and the '718 patent.

In its Motion for Reconsideration, Inline requests that the court modify the construction of "high frequency band" in the *Markman* Opinion, "frequencies above the telephone voice band between the range of 1 and 30 MHz," by deleting the words "between the range of 1 and 30 MHz," or alternatively, by construing the disputed phrase as "a range of frequencies above the telephone voice band."[32] Again, this the same construction proposed by Inline in its *Markman* briefing and at the *Markman* hearing that was rejected by the court.[33]

Defendants contend that the construction set forth in the *Markman* Opinion should not be changed because it "was correctly guided by the governing Federal Circuit law and is firmly grounded in the intrinsic records of these patents."[34]

C. The Parties' Positions on Reconsideration

Inline argues that "[r]econsideration of the Court's construction is required to avoid manifest injustice, as the current construction excludes valuable telephone wire spectrum from the literal scope of the claims and is based upon a misapprehension of the applicability of a dictionary definition and of the embodiments and teachings of the patents."[35] Inline sets forth three distinct arguments it believes compel modification of the court's construction.

First, that the dictionary definition relied upon is not relevant to the patents-in-suit because that definition "refers to specific radio frequency spectrums used historically and today by the Federal Communications Commission ('FCC') as a frequency

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[32] D.I. 242 at 1.
[33] *Markman Opinion*, 302 F. Supp. 2d at 326-28.
[34] D.I. 249 at 3.
[35] D.I. 242 at 1.

nomenclature for regulating and allocating spectrum for *wireless* transmissions, not telephone *wireline* communications [which the patents teach and claim]."[36] Second, that a definition including an upper limit is incorrect because "'a high frequency band of frequencies above the highest telephone voice band of frequencies [sic]' contains a single limitation: that the lower limit of this high band of frequencies must be *somewhere above* the telephone voice band of frequencies."[37] Third, that many preferred embodiments disclosed in the patent specifications are erroneously excluded as a result of the court's construction.[38]

Defendants' first response to Inline's Motion for Reconsideration is a procedural argument that plaintiff's motion does not satisfy the standard for a party seeking to alter or amend an order pursuant to Federal Rule of Civil Procedure 59(e) and that Inline failed to address the requirements for a motion for reargument under District of Delaware Local Rule 7.1.5.[39]

Defendants attack Inline's specific arguments for reconsideration with the contentions that: "neither the dictionary relied on by the Court nor any of the other dictionaries proffered by the parties distinguish between 'wireless' and 'wireline' transmissions"; "the Federal Circuit has specifically held that the ordinary meaning for the terms 'high frequency' in the context of wireline transmissions . . . is 3 MHz-30

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[36] *Id.* at 2 (emphasis in original).
[37] *Id.* (emphasis in original).
[38] *Id.* at 3.
[39] D.I. 249 at 2. As explained in Section II above, the court has determined that the *unique circumstances of this case* warrant a modification of the court's prior construction. This opinion is not intended to be, nor should it be, viewed as an invitation for a disappointed party to seek "a second bite at the apple" through motions for reargument and/or reconsideration anytime the court determines an issue contrary to the result advocated by a party.

MHZ"; "the teaching in the patent specifications . . . are contrary to Inline's position and certainly do not provide the type of clear definition or disavowal necessary to deviate from the ordinary meaning of 'high frequency' in the manner suggested by Inline"; and "the Federal Circuit has made clear that the type of 'after the fact' extrinsic evidence offered by Inline is not a substitute for the Court's careful analysis of the intrinsic record."[40]

V. DISCUSSION

A. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" is Erroneously Based on a Definition that Applies Only to Wireless Transmission

Inline's argument that the definition of "high frequency" relied upon by the court is inapplicable to the patents-in-suit for the reason that that definition "applies to *wireless* transmissions and broadcasts and *not* to telephone wires"[41] is not supported by the intrinsic record and is simply an expansion of the same argument made by plaintiff at the *Markman* hearing.[42]

The definition of "high frequency" relied on by the court in the *Markman* Opinion, "[a]ny of the radio frequencies in the band between 3 and 30 MHz," is found in a dictionary entitled "**Telephony's** Dictionary; Defining 14,500 telecommunication words and terms" (the "*Telephony's Dictionary*").[43] In its opening *Markman* brief, Inline proffered the *Telephony's Dictionary* as an appropriate reference for the court's claim

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[40] *Id.* at 3-4.
[41] D.I. 242 at 5 (emphasis in original).
[42] *See* D.I. 207 at 267-68; 276.
[43] *See* Graham Langley, ***Telephony's*** *Dictionary: Defining 14,500 telecommunication words and terms* 86 (1st ed. 1982) (emphasis added).

construction and cited that dictionary as providing definitions supporting its proposed construction of the disputed term "a high frequency band of frequencies above the highest frequency of the telephone voice band," as well as the disputed terms "telephone exchange," and "signal interface."[44] Another technical dictionary cited by Inline in its opening *Markman* brief, Newton's **Telecom** Dictionary,[45] is consistent with the *Telephony's Dictionary*. That dictionary's definition of "frequency band" incorporates a chart of frequencies which includes "3-30 MHZ –HF– High Frequency" as one of "the accepted explanation[s] of 'bands.'"[46] Inline proffered these telecommunications dictionaries for the court's claim construction during the *Markman* proceedings. It is hardly credible for plaintiff now to argue that particular definitions in those dictionaries which are inconsistent with its proposed construction of "high frequency band" are inapplicable to the patents-in-suit. Furthermore, the same definition of "high frequency" was relied upon by the Federal Circuit when construing the term "high frequency" in another patent concerning wireline transmissions.

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[44] *See* D.I. 189 at 11, 14, 17 (citing the *Telephony's Dictionary* at 86, 7, 104); D.I. 190 Ex. D. Inline consistently cited this dictionary as "*Graham Langley, Telephony's Dictionary*" in its opening *Markman* brief, *see* D.I. 189 at 11, 14, 17, but referred to this same reference as merely the "Graham Langley dictionary" in its Motion for Reconsideration. *See* D.I. 242 at 1 n2.

[45] Harry Newton, *Newton's* ***Telecom*** *Dictionary* (3rd ed. 1990) (emphasis added); *See* D.I. 189 at 16-17, 21, 35 (citing the definitions of "signal" and "interface" from *Newton's Telecom Dictionary*); D.I. 190 Ex. G.

[46] D.I. 249 at 5 (quoting *Newton's Telecom Dictionary* at 52-53). This same chart of frequencies is also included in the definition of "radio frequency band" recited in the *Telephony's Dictionary*. *See Telephony's Dictionary* at 16; D.I. 242, Ex. A. A similar definition of "frequency band" was also included in the "Glossary of Dictionary Definitions Provided by Inline." *See* D.I. 176, Ex. 1 at 6. The partial quotation included in plaintiff's glossary recites: "[i]n general the range of frequencies between specified upper and lower limits. In particular one of the following frequency ranges which are agreed internationally. . ." *Id.* (quoting S W Amos & R S Amos, *Newnes Dictionary of Electronics* 138 (3d ed. 1996)). What Inline elides through ellipses from that definition, however, is yet another chart of frequency ranges that, like the charts of frequency ranges contained in the *Telephony's Dictionary* and *Newton's Telecom Dictionary*, describes "high frequency" as "3-30 MHz." *See Newnes Dictionary of Electronics* at 138.

In *Intellectual Property Development Corporation v. UA-Columbia Cablevision of Westchester, Inc.*, the Federal Circuit reviewed the district court's construction of the term "high frequency" as recited in a patent directed at "a **wired** broadcasting system."[47] The two sources relied upon by the district court included a technical dictionary which defined "high frequency" as "'Federal Communications [C]ommission designation for the band from 3 to 30 MHZ in the **radio** spectrum . . . . [and a nontechnical dictionary which included] 'a **radio** frequencies table list[ing] high frequency as covering 3 to 30 megacycles.'"[48] The Federal Circuit held "that the district court correctly construed [the disputed term] 'high frequency' as including only any frequency between 3-30MHz."[49] Even though those definitions referred to "radio" frequencies and the invention concerned "a wired broadcast system," no distinction between wired and wireless transmission systems was made by the Federal Circuit.

Here, defendants cited *Intellectual Property Development* in their responsive *Markman* brief[50] and at the *Markman* hearing as supporting a definition of "high frequency band" as those frequencies from 3 MHz to 30 MHz.[51] Defendants also argued at the *Markman* hearing that because the invention at issue in *Intellectual Property Development* concerned "a wired broadcasting system," the definition found in that case was also applicable to the wireline transmissions described in plaintiff's patents.[52]

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[47] 336 F.3d 1308, 1310 (Fed. Cir. 2003) (emphasis added).
[48] *Id.* at 1314-15 (emphasis added) (first alteration in original) (citations omitted).
[49] *Id.* at 1317.
[50] *See* D.I. 200 at 21.
[51] *See* D.I. 207 at 253-54.
[52] *See id.* at 279.

At the *Markman* hearing, Inline sought to distinguish *Intellectual Property Development* by arguing that the definition of "high frequency" in that case was not applicable to the patents-in-suit because the specification of the patent being construed in *Intellectual Property Development* did not describe particular frequency ranges where Inline's patents do contain such descriptions.[53] Inline did not, however, attempt to distinguish *Intellectual Property Development* when it raised its wireline/wireless transmission argument at the *Markman* hearing.[54] Since Inline was aware of defendants' reliance on that case from prior briefing and oral argument, it is telling that *Intellectual Property Development* was not even mentioned in its Motion for Reconsideration.

Finally, the '596 line of patents each: refer to radio frequency transmission (abbreviated RF); describe the invention as including "RF transmitters and RF receivers"; and describe the use of RF signals.[55] Indeed, the '596 patent is titled "Two-Way RF Communication at Points of Convergence of Wire Pairs from Separate Internal Telephone Networks." "Radio frequency" is defined as "an electromagnetic wave frequency intermediate between audio frequencies and infrared frequencies used esp.

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[53] *See Id.* at 244.

[54] *See id.* at 267-68. The court agrees with Inline's argument that *Intellectual Property Development* is distinguishable from this case in that the patent at issue in that case apparently did not include specific frequency ranges in its specification. Therefore, the Federal Circuit did not have to reconcile the definition of "high frequency" with inconsistent specification language as is the case here. That argument only distinguishes *Intellectual Property Development* for purposes of determining the range of frequencies covered by the phrase "high frequency band," it does not support plaintiff's wireless/wireline transmission argument.

[55] *See, e.g.*, '596 patent, 9:9-54; 14:59-60 ("The solutions described herein take advantage of the improved ability of RF (radio frequency) signals . . . ."); Likewise, the '718 patent describes the use of radio frequency transmission. *See, e.g.*, '718 patent, 9:58-62 ("In contrast to regulations covering radiation, no special legal problems are created in the U.S. by the connection of radio frequency devices to the public telephone network if those devices do not transmit energy below 6 Mhz.").

in radio and television transmission."[56] Nothing in that definition suggests a distinction between electromagnetic wave frequencies used in wireline transmission as opposed to those used in wireless transmission.

Inline acknowledges that "the term 'RF' is often used generically to describe all frequencies between audio and light frequencies"[57] but contends that "the specific frequency nomenclature relied upon by Defendants and the Court is reserved for the language of *wireless* spectrum allocation by the FCC."[58] Inline offers nothing other than the declaration of its expert, and other extrinsic evidence, to support this contention. Defendants correctly point out that Inline has not cited any dictionary that supports its argument that there were different ordinary and accustomed definitions of a "high frequency band" for wireline transmissions and for wireless transmissions at the time of the inventions described by the patents-in-suit. Nor has Inline pointed to any intrinsic evidence, and the court has found none, which would support that differentiation.[59]

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[56] *Webster's Ninth New Collegiate Dictionary* 971 (1988).

[57] D.I. 242 at 2.

[58] *Id.* (emphasis in original).

[59] Inline's submission of extrinsic evidence (which post-dates the date of the invention by several years) is not needed for the court to construe "high frequency band." This is particularly evident in light of Inline's repeated assertions indicating that the intrinsic record is sufficient for the construction of the disputed terms in the patents-in-suit. *See* D.I. 189 at 1 (stating that the disputed claim terms "all have plain and ordinary meanings within the context of the claims in which these terms are used"); *id.* at 9-13 (citing only dictionary definitions and the specifications of the patents-in-suit in support of its proposed construction of "high frequency band"); D.I. 242 at 8 ("Here the claimed range of the high frequency control and video information signals . . . is readily gathered from reading the patents and their disclosure . . . ."); *id.* at 6 ("[I]t cannot be argued that . . . the phrase 'a high frequency band of frequencies above the highest frequency of the telephone voice band' lacks meaning. . . ."); *see also id.* ("One reading the patent claims and specification would not search beyond the patents for meaning . . . ." (citing the declaration of Inline's expert)). The court agrees and finds it unnecessary to address Inline's arguments that are based exclusively on a new declaration of its expert and other extrinsic evidence. *See Vitronics*, 90 F.3d at 1582 ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence."); *Bell & Howell Document Management Prods. Co. v. Altek Sys.*, 132 F.3d 701, 707 (Fed. Cir. 1998) ("Because the intrinsic evidence unambiguously defined the disputed claim limitation, the district court's reliance on the expert testimony . . . to contradict the intrinsic evidence when interpreting the claims was error." (citing *Vitronics,* 90 F.3d at 1583)). Additionally, Inline's extrinsic evidence need not be considered as that evidence is an attempt to supplement material in support of arguments already made by plaintiff and defendants at the *Markman*

Consequently, the court rejects Inline's argument that the dictionary definition of "high frequency" relied upon by the court is only applicable to wireless transmissions.

B. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" is Erroneous for Including an Upper Limit

Inline's second argument for reconsideration is that "'high frequency band of frequencies above the highest telephone voice band of frequencies' contains a single limitation: that the lower limit of the high frequency band must be *somewhere above* the telephone voice band of frequencies."[60] The implication is that the court erred in selecting a construction of "high frequency band" that includes an upper limit as well as a lower limit. Inline's arguments in its Motion for Reconsideration substantially rehash those made during the *Markman* proceedings that were rejected by the court.

Inline's opening *Markman* brief contained the following argument:

> The ordinary meaning of "frequency band" is "[a] range of frequencies between upper *and* lower limits." *Graham Langley, Telephony's Dictionary* . . . . The word "high" modifies the words "frequency band" to create the terms "high frequency band" and "high band of frequencies" which are explicitly defined in the claim language as frequencies above the voice band. In context, therefore, the high frequency band, and the high band of frequencies, specify a range of frequencies having a lower limit above the highest frequency of the telephone voice band. No requirement is placed on the upper limit of the frequency range.[61]

Within this single paragraph, Inline's own proffered definition of "frequency band," "[a] range of frequencies between upper *and* lower limits," flatly contradicts its position that "high frequency band" should be defined to have no upper limit. The court notes

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hearing. *See BP Amoco Chem. Co. v. Sun Oil Co.*, 200 F. Supp. 2d 429, 432 (D. Del. 2002) ("'[A] motion for reargument may not be used to supplement or enlarge the record' on which the court made its initial decision." (citation omitted)).

[60] D.I. 242 at 2 (emphasis in original).

[61] D.I. 189 at 12-13 (emphasis added).

that the *Telephony's Dictionary* does *not* include the definition of "frequency band" quoted by Inline. This error was pointed out by defendants in their responsive *Markman* brief[62] and at oral argument.[63] Inline never addressed this error or indicated the source of its proffered definition of "frequency band." Upon review of the parties' *Markman* submissions, however, the court discovered the source of Inline's "frequency band" definition. "A range of frequencies between upper and lower limits" is the definition recited in the *Telephony's Dictionary* for "band," not "frequency band."[64] This was one of several definitions of "band" included in a "Glossary of Dictionary Definitions Provided by Inline" attached as Exhibit 1 to the parties' Joint Submission Regarding Claim Construction.[65] Each of technical dictionaries included in plaintiff's glossary define "band" to have both upper and lower limits.[66]

Finally, the intrinsic record supports the conclusion that there is an upper limit to "high frequency band." The specifications of the '596 line of patents state "[a]s mentioned above, *there is an upper limit* to the frequencies that can be useful for transmission of signals across a transmission path of a given length."[67]

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[62] *See* D.I. 200 at 20.

[63] *See* D.I. 207 at 252-53.

[64] D.I. 176, Ex. 1 at 1 (quoting the *Telephony's Dictionary* definition of "band").

[65] *See id*.

[66] *See id*. In addition to the above-quoted definition of "band" recited by the *Telephony's Dictionary*, the Glossary of Dictionary Definitions Provided by Inline lists the following definitions of "**band**":

"2. (data transmission) Range of frequency between two defined limits." The Institute of Electrical and Electronics Engineers, Inc., *IEEE Standard Dictionary of Electrical and Electronics Terms* 79 (Frank Jay ed., 3rd ed. 1984);

"2. In data communication, the frequency spectrum between two defined limits." Jerry M. Rosenberg, *Computers, Data Processing & Telecommunications* 39 (1984);

"Range of frequency spectrum between two limits." John Douglas-Young, *Illustrated Encyclopedic Dictionary of Electronics* 57 (1st ed. 1981).

The only dictionary included in plaintiff's glossary that did not explicitly define "band" as including upper and lower limits was the sole nontechnical dictionary included in that section. *See id.* (*The New Merriam-Webster Dictionary* 71 (Frederick C. Mish ed. 1989) (defining "band" as "3. A range of wavelengths (as in radio)")).

[67] '596 patent, 21:62-64.

The court concludes, therefore, that there is both an upper and lower limit to the phrase "high frequency band" and rejects Inline's argument that the court's construction of that phrase was erroneous as a result of including an upper limit.

C. Inline's Argument that the Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" Improperly Excludes Certain Embodiments Recited in the Patents-In-Suit

Inline contends that the court's construction of "a high frequency band of frequencies above the highest frequency of the telephone voice band" as "frequencies above the telephone voice band between the range of 1 and 30 MHz" improperly excludes several embodiments recited in the patents-in-suit.[68] Inline argues that a construction which excludes preferred embodiments from the scope of the claims is disfavored.[69] Inline's argument on this point has merit. Because the court determines that the proper construction of "high frequency band" is different for the '596 line of patents and the '718 patent, the appropriate modification of the court's prior construction for each will be discussed separately.

1. The Parties' Arguments with Regard to the '596 Line of Patents

During the *Markman* proceedings, Inline pointed to a control signal illustrated in figure 3*a* of the '596 line of patents as centered at 0.5 MHz as an example of

[68] D.I. 242 at 3.
[69] *Id.* at 4.

frequencies improperly excluded from defendants' proposed construction of "high frequency band."[70]

Inline reiterates this argument in its Motion for Reconsideration and also points to frequencies above 30 MHz that are excluded by the court's construction of "high frequency band." Inline again notes that figure 3*a* of the '596 line of patents describes an embodiment having a control signal with a lower limit at 0.25 MHz.[71] Inline cites each of the patents-in-suit as stating "[t]he control signal is transmitted in a high frequency band."[72] Inline also contends that "the upper end, while not discussed by either party in the *Markman* briefs, is clearly disclosed with examples given at 100 MHZ and 5000 MHz."[73]

Defendants' opposition to the Motion for Reconsideration never addresses Inline's argument that the court's construction of "high frequency band" improperly excludes frequencies above 30 MHz. Defendants focus solely on the lower limit of the court's construction. They argue that the patents describe the control signal disclosed in figure 3*a* as "Amplitude Modulation within a **Low-Frequency channel**."[74] Based on this language, defendants contend that this example of control signal transmission is not a "high frequency band" signal and, therefore, the court's construction of that phrase

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[70] *See* D.I. 197 at 19 (citing figure 3*a* of the '596 line of patents as supporting its argument that "[d]efendants' construction, which requires the high frequency band of signals above the telephone voice band to be more than 1 MHz, reads this 0.5 MHz example out of the specification.").

[71] D.I. 242 at 4. The '596 line of patents describe control signals as having a 0.5 MHz bandwidth, therefore, the control signal illustrated in figure 3*a* spans a frequency band from 0.25 MHz to 0.75 MHz. *See* '596 patent, 41:12-14 & figure 8 (bandwidth examples).

[72] D.I. 242 at 4 n6 (citing '596 patent, cl. 24; '585 patent, cl. 3; '446 patent, cl. 6; '718 patent, 23:36-40).

[73] *Id.* at 5 & 5 n7 (citing '596 patent, 37:66-38:5 & figure 8); *see also id.* at 4 & 4 n6.

[74] D.I. 249 at 9 (citing '596, patent 25:44-45 (emphasis added by defendants)).

does not improperly exclude a preferred embodiment.[75] This is the same argument presented by defendants at the *Markman* hearing.[76]

Defendants, however, have presented contradictory arguments with regard to the lower limit of the "high frequency band." In their opening *Markman* brief, defendants argued that "the proper construction of the phrase 'high frequency band of frequencies above the highest frequency of the telephone voice band' in these elements is 'the band of frequencies above 1 MHz.'"[77] In defendants' responsive *Markman* brief, they changed their proposed definition and argued for a construction of "high frequency band" having a lower limit of 3 MHz based on the definition of "high frequency" in the *Telephony's Dictionary*, "[a]ny of the radio frequencies in the band between 3 and 30 MHz."[78] In that same brief, defendants nevertheless conceded that "[t]he specification is explicit that the *high frequency signals* are never lower than 1 MHz."[79] Although previously acknowledging that the "high frequency band" includes signals at least as low as 1 MHz, at oral argument, defendants took the position that the inventor described all frequencies below 3 MHz as "low frequency channels" and, therefore, signals below 3 MHz should not be included in the definition of "high frequency band."[80]

In their opposition to the Motion for Reconsideration, defendants repeat this last argument stating that "this purported example of a 'high frequency' control signal being transmitted at a frequency below 3 MHz is in fact, according to the specification itself,

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[75] *See id.*
[76] *See* D.I. 207 at 256-57.
[77] D.I. 187 at 43 (emphasis omitted).
[78] D.I. 200 at 20-22.
[79] *Id.* at 22 (emphasis added).
[80] D.I. 207 at 256-57; *see also id.* at 256 ("[I]f you go to the '596 patent, you are not going to find any expressed teaching in the patent that would cause one of skill in the art or cause this court to deviate from the plain meaning of high frequency being between 3 and 30 megahertz.")

an example of a 'low frequency transmission.'"[81] In the very next paragraph, however, defendants again contradict that assertion by arguing that "the specification distinguishes between high and low frequency signals, consistently referring to signals below 1 MHz as low frequency signals."[82] That 1 MHz limit is described in the section of the specification titled "Amplitude Modulation within a Low-Frequency Channel,"[83] the same section of the specification defendants previously argued, in their opening *Markman* brief and conceded in their responsive *Markman* brief, supported a construction of "high frequency band" *including* signals at 1 MHz and above.

If, as defendants now argue, the court's construction is correct in defining the lower limit of "high frequency band" to be 1 MHz, it is hard to reconcile their position that the control signal described in the same section of the specification is not also part of the "high frequency band."[84] Given defendants' inconsistent positions, the court believes it is more reasonable to accept Inline's argument that the frequencies of both the video signal component and the control signal illustrated in figures 3*a* and 3*c* are within the "high frequency band." Although not articulated by Inline, the description of

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[81] D.I. 249 at 9.

[82] *Id.* at 11 n5; *see also id.* at 9-10 ("[T]here is nothing in this section of the specification [concerning 'low-frequency channels'] or elsewhere that suggests placing such [high frequency] signals in the band below 1 MHz.").

[83] *See* '596 patent, 25:44-27:13.

[84] The court notes that defendants' argument that "the specification distinguishes between high and low frequency signals, consistently referring to signals below 1 MHz as low frequency signals," D.I. 249 at 11 n5, and that nothing in the '596 line of patents "suggests placing such [high frequency] signals in the band below 1MHz," *id.* at 10, is accurate only with respect to the transmission of video signals. The patents make clear that the invention is not limited to transmission of video signals but also includes the transmission of control, and other, signals. *See* '596 patent, 1:23-24 (describing the invention as "relat[ing] to a system for simultaneous two-way communication of video signals and other signals . . . ."); '596 patent, 1:56-64 ("The communication systems disclosed in the parent and first and second CIP applications are designed to simultaneously transmit telephone signals and non-telephonic signals (such as cable television signals, other video signals, audio signals, data signals, and control signals) across the active telephone wiring internal to . . . residences and other structures. The present invention adds to these techniques, providing distribution of all of these signals to a local network of active telephone wiring . . . .").

"Amplitude Modulation within a Low-Frequency Channel" may be understood to refer to the lower frequencies of the "high frequency band." These figures, then, describe the use of *comparatively* lower frequency channels within the "high frequency band," *i.e.*, frequencies which are lower than the transmission levels of the preferred embodiments described earlier in the patent specifications.[85]

Because the court's prior construction of "high frequency band" excluded certain embodiments recited in the '596 line of patents, and because defendants have not argued that there is evidence that those embodiments are not covered by these patents, the court concludes that its prior construction was overly narrow and must be modified.[86]

2. The Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Telephone Voice Band" for the '596 Line of Patents

In order to modify properly its prior construction of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band," the court must first determine precisely which words in that phrase are in dispute. Once that issue is resolved, the court will determine the ordinary and accustomed meaning of the disputed term as reflected in relevant dictionaries and then examine other intrinsic

[85] *See* '596 patent, 19:27-56 (describing preferred embodiments in the section titled "Minimum Frequency"); '596 patent, 25:10-11 (stating that the embodiments described in figures 3*a* and 3*c* "use frequencies below the lower limits suggested above[, *i.e.*, the those described in the 'Minimum Frequencies' section]."

[86] *See Vitronics*, 90 F.3d at 1583 (stating that a construction that excludes a preferred embodiment "is rarely, if ever, correct and would require highly persuasive evidentiary support."); *see also Applera Corp. v. Micromass UK Ltd.*, 186 F. Supp. 2d 487, 504-08 (D. Del. 2002) (rejecting proposed construction that would read out preferred embodiment illustrated in figure); *cf. Elekta Instrument S.A. v. O.U.R. Scientific Int'l*, 214 F.3d 1302, 1308 (Fed. Cir. 2000) (illustrating "the rare case" in which the correct claim construction "exclude[d] the preferred . . . embodiment disclosed in the specification . . . [because] the prosecution history and the unambiguous language of the amended claim" demonstrated that the preferred embodiment was not covered by the claim (citation omitted)).

evidence to see if the patentee's use of that term is consistent with its ordinary meaning.[87]

In its Motion for Reconsideration, Inline resurrects its argument that, in each of the patents-in-suit, the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band" means "the frequencies above the telephone voice band."[88] The embodiments described in the specifications of the '596 line of patents demonstrate that the lower limit of disputed phrase should include the lower limit of the control signal illustrated in figure 3*a*. The court must now determine which words in that phrase are in dispute and, thereafter, whether the claims should be construed as broadly as Inline suggests.

In prior briefing, Inline supported its proposed construction by stating that the *Telephony's Dictionary* provides the "ordinary meaning of 'frequency band' [as] '[a] range of frequencies between upper and lower limits.'"[89] As recited above, plaintiff argued that:

> the word "high" modifies the words "frequency band" to create the terms "high frequency band" and "high band of frequencies" which are explicitly defined in the claim language as frequencies above the voice band. In context, therefore, the high frequency band, and the high band of frequencies, specify a range of frequencies having a lower limit above the highest voice frequency of the telephone band.[90]

Having concluded its discussion of the first part of the phrase "a high frequency band of frequencies above the highest frequency of the telephone voice band," Inline stated that "'[v]oice band' is a well-known term of art, which is a frequency 'band used on telephone

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[87] Neither party presented arguments based on the prosecution history with respect to the term at issue in the Motion for Reconsideration.

[88] D.I. 242 at 10-11.

[89] D.I. 189 at 11 (second alteration in original).

[90] *Id.* at 11-12.

equipment for the transmission of voice and data,' the highest frequency [of which] is not more than approximately 4000 Hz."[91] Plaintiff concluded that "by the plain claim language, the lower frequency limit of the high frequency band is above the voice band and is therefore above approximately 4000 Hz."[92]

Defendants have consistently argued that Inline's proposed construction reads the words "high frequency" out of the claims.[93] Inline has provided no response to this argument. Defendants argue further that other claims in the '596 line of patents support its contention that "high frequency band" recited in the asserted claims can not simply mean all frequencies above the voice band.[94]

For instance, Claim 1 of the '596 patent recites: "circuitry for transmitting said received video signal onto at least one of said telephone lines in a selected frequency range that is *different from* frequencies at which said voice signals are carried on said one telephone line . . . ."[95] Claim 13 of the '596 patent recites: "[t]he system of claim **1** wherein said voice signals are carried by said telephone lines at voiceband frequencies and said selected frequency range *exceeds* said voiceband frequencies."[96] Since the asserted claims recite the more specific limitation of "high frequency band," defendants argue that Inline's proposed construction is inconsistent with other claim language used by the patentee. The court agrees with defendants on these points.

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[91] *Id.* at 12 (quoting Jerry M. Rosenberg, *Computers, Data Processing & Telecommunications* (1984)).

[92] *Id.*

[93] *See* D.I. 207 at 258-59; D.I. 249 at 11 n4.

[94] D.I. 249 at 10-11.

[95] '596 patent, cl. 1 (emphasis added); *see also* '596 patent, cl. 9 (". . . a second selected frequency range that is different from said frequency range selected by said interface and *different from* frequencies at which said voice signals are carried on said telephone link . . . ." (emphasis added)).

[96] '596 patent, cl. 11 (emphasis added); *see also* '596 patent, cl. 13 ("circuitry for changing the frequency of said video signal received from said telephone line to a frequency band that *exceeds* said voiceband frequencies . . . ." (emphasis added)).

The parties agree that the "highest frequency of the telephone voice band" is approximately 400 Hz.[97] Therefore, the dispute centers on the meaning of the words "high frequency band." Inline's argument that "high" modifies "frequency band" and, thus, that the disputed phrase simply means "frequencies above the voice band" unquestionably reads "high frequency band" out of the claim. The entire disputed phrase reads:

> "a high frequency band of frequencies above the highest frequency of the telephone voice band."

Inline's proposed construction of that phrase is:

> "frequencies above the telephone voice band."[98]

In essence, that construction merely excises "a high frequency band" from the disputed phrase and gives no meaning whatsoever to those words.

Defining "high" as simply meaning that the "frequency band" is "above" the voice band, as Inline suggests, would make the words "high frequency band" superfluous since the entire phrase in question already requires the "high frequency band" to be limited to those "frequencies *above* the highest frequency of the telephone voice band." A construction that does not give meaning to all the words in a disputed phrase is disfavored.[99] The more logical construction, and the one which gives meaning to all the

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[97] *See* D.I. 197 at 18 (Plaintiff states that "[a]ll parties accept that the telephone voice band is the band that carries voice telephone signals, which is commonly understood to be between approximately 0 and 4 KHz."). Defendants apparently do not challenge plaintiff's definition of "voice band." *See* D.I. 187 at 44 ("Because the top end of the voiceband is approximately 4KHz . . . .").

[98] D.I. 189 at 10; *see also* D.I. 242 at 1 (suggesting modification of the court's construction to read "frequencies above the voice band" or, alternatively, "a range of frequencies above the telephone voice band").

[99] *See Pickholtz v. Rainbow Techs., Inc.*, 284 F.3d 1365, 1373 (Fed. Cir. 2002) ("[I]nterpretations that render some portion of the claim language superfluous are disfavored. . . .")

words in the disputed phrase, is that "high frequency" modifies "band." This construction does not render any words of the asserted claims superfluous.

Defendants' argument regarding other claim language reciting broader limitations also supports the rejection of Inline's proposed construction. Examining these other claims is consistent with the Federal Circuit's mandate that in construing claims the court is to read the disputed language in the context of the entire patent.[100] Independent claim 1 of the '596 patent includes the limitation that frequencies are transmitted "in a selected frequency range that is *different from* frequencies at which said voice signals are carried on said one telephone line . . . ."[101] Claim 11 of the '596 patent, which depends from claim 1, contains the narrower limitation that "said selected frequency range *exceeds* said voiceband frequencies."[102] The plain meaning of the limitation recited in claim 11 is the same as Inline contends this court should apply to "high frequency band" in the asserted claims. When the patentee sought to limit a claim to transmission of frequencies that are merely "different from" or "exceed" (or are "above") the voice band, he knew how to do so.[103] That is not the limitation included in the

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[100] *See Brookhill-Wilk 1 LLC v. Intuitive Surgical Inc.*, 334 F.3d 1215, 1220-21 (Fed. Cir. 2003) ("While certain terms may be at the center of the claim construction debate, the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms. . . . While dictionaries and treatises are useful resources in determining the ordinary and customary meaning or meanings of disputed claim terms, the correct meaning of a word or phrase is informed only by considering the surrounding text. This is why consulting dictionary definitions is simply a first step in the claim construction analysis and is another reason why resort must always be made to the surrounding text of the claims in question, the other claims, the written description and the prosecution history.").

[101] '596 patent, cl. 1 (emphasis added).

[102] '596 patent, cl. 11 (emphasis added).

[103] *See Rodime PLC v. Seagate Tech., Inc.*, 174 F.3d 1294, 1304-05 (Fed. Cir. 1999) (The court rejected defendant's proposed construction as contrary to the language of the asserted independent claims and noted that a nonasserted independent claim which included the limitation argued for in the asserted claims supported this rejection. The court stated, "had [plaintiff] intended or desired to claim [the proposed limitation] in the asserted claims, it could have done it explicitly, as in claim 11. The absence of any such explicit language, however, shows that the [asserted claims] do not include [the proposed limitation]."); *see also Forest Lab., Inc. v. Abbot Lab.*, 239 F.3d 1305, 1310 (Fed. Cir. 2001) ("Where

asserted claims, however. Those claims include the more specific limitation to transmissions of frequencies in the "high frequency band."[104] The court concludes, therefore, that in the disputed phrase "high frequency band," the term "high frequency" modifies the term "band." The court must now determine the ordinary and accustomed meanings of these terms.

Defendants contend that the proper construction of "high frequency band" is determined by the definition of "high frequency" contained in the *Telephony's Dictionary*; "[a]ny of the radio frequencies in the band between 3 and 30 MHz." As noted above, this definition is one of several consistent definitions recited in dictionaries proffered by Inline as appropriate for the court's construction of the disputed terms of the patents-in-suit. Inline has offered no other dictionaries available at the time of invention expanding this definition of "high frequency."[105] The definition of "band" recited in several dictionaries proffered by Inline is "a range of frequencies between upper and lower limits."[106] By combining the definitions of "high frequency" and "band," the court concludes that the ordinary and accustomed meaning of the phrase "high frequency

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claims use different terms, those differences are presumed to reflect a difference in the scope of the claim."); *General American Transp. Corp. v. Cryo-Trans, Inc.*, 93 F.3d 766, 770 (Fed. Cir. 1996) (rejecting district court's construction which rendered a particular claim requirement superfluous); *RF Delaware, Inc. v. Pacific Keystone Techs., Inc.*, 326 F.3d 1255, 1264 (Fed. Cir. 2003) (rejecting proposed construction for asserted claim that would render "redundant or meaningless" a limitation in unasserted claims).

[104] This analysis also compels the court to reject Inline's argument that the "patent specifications *define* high frequency as: 'high-frequency (*i.e.*, non-voice band) signals." D.I. 242 at 7 (quoting '446 patent, 54:25; '585 patent, 54:11; and '596 patent, 53:61 (emphasis added)). That parenthetical reference is far from an explicit definition of "high frequency band" as all frequencies above the highest frequency of the telephone voice band.

[105] *See Texas Digital Sys., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1203 (Fed. Cir. 2002) ("If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all consistent meanings.").

[106] *See* footnote 66, above.

band" at the time of the inventions at issue was "the range of radio frequencies between 3 MHz and 30 MHz."[107]

Because the court has already determined that the intrinsic record describes certain embodiments in the '596 line of patents having frequencies outside of the range of frequencies to which the ordinary meaning of "high frequency band" is limited, the court will not construe the disputed phrase to be so limited.[108] This is not problematic, however. The Federal Circuit has stated that:

> the specification or the prosecution history of a patent may alter the meaning of a claim term from its conventional usage. A patent applicant may consistently and clearly use a term in a manner either *more or less* expansive than its general usage in the relevant art, thereby *expanding or limiting* the scope of the term in the context of the patent claims.[109]

Here, the embodiments described in the specifications make clear that the patentee used the term "high frequency band" more expansively than its ordinary and accustomed meaning. Moreover, it is entirely proper to construe that term by examining the specifications' description of preferred embodiments, even if the term "high frequency band" is not explicitly defined therein.[110]

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[107] *See Alloc, Inc. v. International Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003) ("Claim language generally carries the ordinary meaning of the words in their normal usage in the field of invention at the time of the invention.").

[108] *See Texas Digital*, 308 F.3d at 1204 ("[If] the intrinsic record . . . show[s] that the specification uses the words in a manner clearly inconsistent with the ordinary meaning reflected, for example, in a dictionary definition . . . the inconsistent dictionary definition must be rejected.").

[109] *Alloc, Inc.*, 342 at 1368 (emphasis added); *accord Genzyme Corp. v. Transkaryotic Therapies, Inc.*, 346 F.3d 1094, 1098 (Fed. Cir. 2004) ("In other words, a patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant community, and thus expand or limit the scope of the term in the context of the patent claims." (citing *Ballard Med. Prods. v. Allegiance Healthcare Corp.*, 268 F.3d 1352, 1361 (Fed. Cir. 2001); *Middleton, Inc. v. Minnesota Mining & Mfg. Co.*, 311 F.3d 1384, 1388 (Fed. Cir. 2002)).

[110] *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.,* 242 F.3d 1337, 1344 (Fed. Cir. 2001) (holding the written description of the preferred embodiment "can provide guidance as to the meaning of the claims, thereby dictating the manner in which the claims are to be construed, even if the guidance is not provided in explicit definitional format"); *Vitronics* 90 F.3d at 1582 ("The specification acts as a dictionary when it expressly defines terms used in the claims *or when it defines terms by implication*." (emphasis added)).

Inline argues only that "high frequency band" is "frequencies above the highest voice band" and defendants argue that the court's prior construction of "frequencies above the telephone voice band between the range of 1 and 30 MHz" is correct. Because the court concludes that neither party's position is correct, this leaves it to the court to determine the proper limits of the term "high frequency band" on its own. These limits can be ascertained from the intrinsic record and do not require consideration of extrinsic evidence.

Inline notes that the specifications of the '596 line of patents, recite: "[t]o minimize the highest frequency used for transmission, it is recommended that the first channel be placed as close to the voiceband as feasible . . . ."[111] Examination of the specifications reveals the lowest "feasible" frequency contemplated by the patentee. Under the heading "Minimum Frequency," the following preferred embodiments are described: "[i]f AM is used to transmit video signals, it is preferred that the picture carrier of the first such channel be located above 4.25 Mhz"[112] and "[f]or FM transmission, it is preferred that the low end of the first channel be 4 Mhz."[113] These embodiments contemplate transmission of multiple channels above the voice band. The transmission of multiple channels is clearly the goal of the inventions.[114] The patents also describe more limited embodiments which are only capable of transmitting a single signal, however, and these embodiments recite the lowest transmission frequencies described in the '596 line of patents.

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[111] D.I. 242 at 7 (quoting '596 patent, 19:18-22, '446 patent, 19:28-32, '585 patent, 19:30-35).
[112] '596 patent, 19:28-30.
[113] '596 patent, 19:43-44.
[114] '596 patent, 1:23-24 ("The present invention relates to a system for simultaneous two-way communication of video signal***s*** . . . ." (emphasis added)).

In a section titled "Transmitting a *Single* Video Signal over Long Transmission Lengths (FIGS. 3A-3C),"[115] the specifications state that "[i]n these types of situations, use of extended pairs **405** to communicate multiple signals over a large frequency range many not be feasible. A system that communicates only a single video signal, however, can still be very useful in many important applications."[116] The embodiments capable of transmitting only one video channel described in this section of the specifications represent the outer limit of transmission that is feasible. In discussing these outer-limit transmissions the patents describe "us[ing] frequencies below the lower limits suggested [in the "Minimum Frequency" section.]"[117] The patents state, with respect to figures 3*a* and 3*c*, that "there is 'room' to transmit a narrow band of control signal between the voiceband and the video signal."[118] The lowest frequency at which video signals are transmitted is 1 MHz and is illustrated in figure 3*a*. "F[igure] **3***a* shows the spectrum of such signal. The carrier frequency is 1.25 Mhz, with the lower sideband substantially suppressed below 1 Mhz."[119]

This court is mindful of the Federal Circuit's admonition not to read limitations from patent specifications into the claims as well as that court's acknowledgment that there is "sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification."[120] For instance, in *Comark* the

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[115] '596 patent, 24:64-65 (emphasis added).
[116] '596 patent, 25:1-5.
[117] '596 patent, 25:9-11.
[118] '596 patent, 25:32-33.
[119] '596 patent, 25:53-55.
[120] *Comark Communications Inc. v. Harris Corp.*, 342 F.3d 1161, 1186 (Fed. Cir. 1998); *see also Alloc, Inc.*, 342 F.3d at 1370 ([T]his court recognizes that it must interpret the claims in light of the specification, . . . yet avoid impermissibly importing limitations from the specification. . . . That balance turns on how the specification characterizes the claimed invention. . . . In this respect, this court looks to whether the specification refers to a limitation only as a part of less than all possible embodiments or

Federal Circuit determined that defendant's proposed construction seeking to limit the disputed term "to its functional purpose as disclosed in the preferred embodiment" was an improper attempt to read limitations from the specification into the claims.[121] Conversely, the patents in this case make clear that the 1 MHz lower limit of video transmission of a "high band of frequencies" does not merely represent a functional purpose of a preferred embodiment. The patent states that "[o]ne of the disadvantages of lower frequencies is that the filtering that separates these signals from voiceband signals is more expensive because of the sharp cutoff *required* between the upper end of the voiceband and 1 Mhz."[122] Rather than fulfilling the functional *purpose* of this embodiment, the specification makes clear that 1 MHz is a functional *limitation* of the invention.[123] Therefore, the court concludes that lowest feasible frequency at which the invention can transmit "high frequency band" video signals is 1 MHz.

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whether the specification read as a whole suggests that the very character of the invention *require*s the limitation be a part of every embodiment." (emphasis added) (citations omitted)).

[121] *Comark*, 342 F.3d at 1187.

[122] '596 patent, 25:62-65.

[123] This case is likewise distinguishable from the Federal Circuit's recent decision in *Gemstar-RV Guide Int'l, Inc. v. International Trade Comm'n*, — F.3d —, No. 03-1052, 2004 WL 2059279, at *10 (Fed. Cir. Sept. 16, 2004). There, the defendant argued that the claim limitation "visual identification" recited in one of the patents at issue was limited to "an innovative cursor" based on language in the written description which stated "an innovative cursor 32 . . . for the irregular array . . . is *required* which satisfies several conflicting requirements." *Id.* at *8-*9 (emphasis added). The Federal Circuit rejected that argument stating that "in the context of the disclosure of the preferred embodiment of the '204 patent, the statement that 'innovative cursor 32 . . . is required,' is not the 'us[e] [of] words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.' . . . Properly read . . . the statement merely conveys the advantages of 'innovative cursor 32' over prior art conventional cursors in the preferred embodiment." *Id.* at *10 (citations omitted) (alteration in original). Here, the "sharp cutoff required" below 1 MHz is not recited as a comparison to prior art. Also, while described as one of three "disadvantages" of the embodiment illustrated in figure 3*a*, this disadvantage was not one which might be overcome with stronger filtering or would merely be more expensive; the 1 MHz limit is a functional requirement. *Cf.* '596 patent, 25:65-26:4 (The patents describe two disadvantages of the lower frequency transmissions illustrated by figure 3*a*, in addition to the "sharp cutoff required" below 1 MHz: "[a] second disadvantage is that the harmonics of the telephone signals at lower frequencies are stronger, meaning that stronger filtering of the harmonics is required to protect against interference from these signals. A third disadvantage is that the modulation electronics becomes more expensive as the picture carrier approaches DC.").

As discussed above, it is reasonable to conclude that the control signal described in figure 3*a* is also included in the "high frequency band." The lower limit of this "narrow band" of signals is 0.25 MHz. Again, this appears to be the lowest limit at which it is feasible to transmit a "high frequency band" control signal. Other than Inline's insistence that the "high frequency band" includes all frequencies above the voice band, which the court has rejected, plaintiff has not pointed to any intrinsic evidence which contradicts this conclusion.[124]

Inline notes that "the upper end [of the high frequency band] . . . was not discussed by either party in the *Markman* briefs . . . ."[125] The failure of the parties to present arguments regarding the upper end of the high frequency band is undoubtedly due to the fact that the accused products operate at a range near the voice band and, therefore, the parties likely view the upper range of the high frequency band to be irrelevant to the question of infringement presented in these proceedings. Because the parties provided no argument at all concerning the appropriate upper limit of the "high frequency band," the court determines that it is unable to define a precise upper limit on this disputed term.

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[124] The video signal illustrated in figure 3*a* is described "a frequency *slightly above* voiceband." '596 patent, 25:14-15 (emphasis added). Figure 3*a* is also captioned "Spectrum of an Amplitude Modulated NTSC Signal *Near* Voiceband" (emphasis added). Figure 3*c* is similarly captioned "Spectrum of an FM NTSC Signal *Near* Voiceband (emphasis added). In figure 3*c*, the control signal is centered at 1 MHz and the lower limit of the video signal is located at 3 MHz. The control signal illustrated in figure 3*a* is described as being near the voiceband. *See* '596 patent, 25:34-38 ("Because placing narrowband signals near the voiceband reduces filtering costs, . . . this is a preferred method of transmitting these signals. Thus FIGS. **3***a* and **3***c* allocate a small part of the spectrum between the voiceband and the video signal to these selection signals."). Indeed, when discussing figure 3*a* at the *Markman* hearing, Inline described the control signal centered at 0.5 MHz as "real close to that 4,000 [Hz] we looked at before." D.I. 207 at 247.

[125] D.I. 242 at 3.

Consequently, the court construes "high frequency band" as claimed in the '596 line of patents to mean "frequencies above the telephone voice band between 0.25 MHz and an undetermined upper limit."

3. The Court's Construction of "A High Frequency Band of Frequencies Above the Highest Frequency of the Voice Band" for the '718 Patent

Although the court previously construed "high frequency band" as having the same meaning in both the '596 line of patents and the '718 patent, after a thorough review of the parties arguments and the patents-in-suit, the court concludes that "high frequency band" must be construed more narrowly for the '718 patent than for the '596 line of patents. Having already determined that the ordinary and accustomed meaning of "high frequency band" is "the range of radio frequencies between 3 MHz and 30 MHz," the court must determine whether the intrinsic evidence demonstrates that the patentee used that term more or less expansively in the '718 patent.[126]

As described above, defendants' opening *Markman* brief argued for a construction of "high frequency band" in the '718 patent as limited to those frequencies above 6 MHz and for a construction of that phrase in the '596 line of patents as limited to those frequencies above 1 MHz. Defendants then changed their proposed constructions and argued at the *Markman* hearing for one construction of "high frequency band" to be applied to all of the patents-in-suit. The court's review of the

[126] The court notes again that the disputed language in the '718 patent, "a high band of frequencies above a telephone voice band," is a slight variation of the disputed language in the '596 line of patents, "a high frequency band of frequencies above the highest frequency of the telephone voice band." Neither party argued that this distinction was relevant to the court's construction of those phrases and stated that "high band of frequencies" and "high frequency band" are interchangeable and mean the same thing. *See* footnote 26, above.

record reveals that, with respect to the '718 patent, defendants' initially-proposed construction is correct.[127]

In support of that construction, defendants' opening *Markman* brief pointed to language in the '718 patent which states that governmental regulations restrict transmission of non-telephone signals below 6 MHz in the system described. Defendants also pointed out that the '718 patent specifically distinguishes the Tatsuzawa prior art patent on the basis that Tatsuzawa uses frequencies between 0 and 4 MHz, which "creates legal problems"[128] that are avoided by the invention described in the '718 patent.

Plaintiff never specifically responded to either of defendants' arguments concerning the '718 patent's distinguishing of the Tatsuzawa prior art patent or that patent's references to regulations restricting transmission of signals below 6 MHz. In its opening *Markman* brief, Inline cited the '718 patent's statement that:

> The technique disclosed herein embodies an extension designed to avoid interference with telephone signals. The extension calls for the frequency of the electrical version of the control signals to be converted to a higher band before transmission across the wiring. **This band will be high enough to eliminate interference with the telephone or low-frequency communication signals**.[129]

Inline argued that:

> It is clear from the above language that all of the patents contemplate selecting frequencies for the "high frequency band" that are sufficiently separate from the voice band to avoid causing interference with the telephone signals in the voice band during shared transmission on

[127] Plaintiff had full opportunity to present arguments as to why it opposed this construction and, as plaintiff stated at the *Markman* hearing, the constructions set forth in defendants' opening *Markman* brief are those plaintiff was prepared to argue against at the *Markman* hearing.

[128] D.I. 187 at 45 (citing '718 patent 3:9-22).

[129] D.I. 189 at 12 (quoting '718 patent, 13:22-31 (emphasis added by Inline)).

> telephone wiring. The precise choice of frequency above the voice band is not important to the invention as long as interference is avoided with the voice band.[130]

Inline contended that "[t]here is no support in the plain language of the claims or the intrinsic evidence [to impose a 6 MHz lower limit]."[131]

In its responsive *Markman* brief, Inline argued that "the patents explicitly teach putting high frequency bands as low as possible and as close as possible to the telephone voice band to avoid signal attenuation . . . [and that] Defendants' construction would create a gap of between [sic] frequencies that is contrary to the teaching of the patents."[132] Inline responded to defendants' argument that, for the '596 line of patents, "high frequency band" should be construed as limited to frequencies above 1 MHz by pointing out that such construction would exclude the preferred embodiment illustrated in figure 3*a* of the '596 line of patents.[133] Again, Inline did not respond to defendants' arguments regarding regulations restricting transmission of signals below 6 MHz and the Tatsuzawa prior art patent.

Moreover, Inline failed to address directly those arguments at the *Markman* hearing. Inline merely stated that "a six megahertz barrier . . . [is an] example[], and all [the '718 patent is] talking about is you configure these frequencies in a lot of ways, and here's one example [of] how you can do that . . . ."[134] Giving plaintiff the benefit of the broadest reading possible of that statement, Inline might be understood to contend that defendants' proposed construction would improperly read the description of a preferred

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[130] *Id.* at 13.
[131] *Id.*
[132] D.I. 197 at 18.
[133] *Id.*
[134] D.I. 207 at 246.

embodiment limitation from the specification into the claims. Even that reading is unavailing. References in the '718 patent to the 6 MHz limitation are not descriptions of a preferred embodiment selected by the patentee; they are descriptions of a restriction imposed by government regulations. The '718 patent specifically references this restriction three times.

The first reference is in connection with a discussion of the Tatsuzawa prior art patent. The Tatsuzawa invention is described as:

> depending on electrical characteristics particular to frequencies between 0 and 4 Mhz, limiting the transmission of frequency to that band. This creates *legal problems* because in the U.S., for example, *regulations severely limit the RF energy below 6 Mhz that can be fed to wiring that is connected to the public telephone network*.[135]

Next, the patent reiterates that there can be "legal problems" pertaining to electromagnetic radiation created when video signals are transmitted across telephone wiring.[136] The patent states that these legal problems are avoided by transmitting video signals above 6MHz: "[i]n contrast to regulations covering radiation, no specific legal problems are created in the U.S. by the connection of radio frequency devices to the public telephone network *if those devices do not transmit energy below 6 Mhz*."[137]

Finally, in discussing control signals, the '718 patent again references the regulations concerning transmission of energy below 6 MHz but notes that those regulations are not a problem for the invention described therein because "the U.S. Federal Communications Commission imposes *no restrictions on signals above 6 Mhz,*

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[135] '718 patent, 3:16-21 (emphasis added).
[136] '718 patent, 9:51-55.
[137] '718 patent, 9:58-62 (emphasis added).

leaving ample room [for transmission of a control signal] *between that frequency and the video signals*, even if a channel below VHF 2 is used."[138]

The '718 patent, therefore, identifies 6 MHz as the lower limit of frequency transmission permitted by government regulations and not a merely as an example of a limitation described as part of a preferred embodiment which should not be read into the claims. This restriction is described as affecting both transmission of video and control signals. Furthermore, nothing in the intrinsic record contradicts this conclusion and no preferred embodiments are read out of the patent as a result of defining 6 MHz as the lower limit of the "high frequency band." In fact, the preferred embodiments described in the '718 patent describe transmission of video signals at frequencies significantly higher than 6 MHz.

The patent states that "[t]he most natural choices for transmission frequencies are the channels in the low VHF range . . . [which are] VHF channels 2 through 6, which extend from 54 Mhz to 88 Mhz."[139] The lowest frequency band at which the inventors conducted video-transmission experiments was in the channel spanning from 24 MHz to 30 MHz.[140] With regard to control signals, the preferred embodiment describes transmission of a control signal at 10.7 MHz.[141] As noted above, however, the specification indicates that control signals can be transmitted in a range between 6 MHz

[138] '718 patent, 13:52-57 (emphasis added).
[139] '718 patent, 10:60-63.
[140] *See* '718 patent, 11:23-13:7.
[141] '718 patent, 13:58-62.

and the lower limit of a transmitted video signal. Nowhere does the specification suggest transmission of any video or control signal below 6 MHz.[142]

In light of plaintiff's deafening silence in response to defendants' specific argument regarding the government regulations restricting transmissions below 6 MHz, the court can only assume it had no viable argument to make. The court therefore concludes from this silence, and its review of the intrinsic evidence, that the lower limit of the "high frequency band" claimed in the '718 patent is 6 MHz. As with the '596 patent, the parties failed to present any argument concerning the upper limit of the "high frequency band" claimed in the '718 patent. This failure again precludes the court from defining the upper limit of "high frequency band" other than to note that the '718 patent includes several examples of transmission at frequencies above the limit of 30 MHz to which the court's prior construction limited this phrase.[143]

Consequently, the court construes "high frequency band" as claimed in the '718 patent to mean "frequencies above the telephone voice band between 6 MHz and an undetermined upper limit."[144]

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[142] *See* '718 patent, 21:1-3 (In describing "Systems for RF Conversion to Achieve Transmission below VHF Channel 2," the specification states that "[a]t the video source end, the transceiver *must* convert the signal from the frequency at which it is supplied to a band between 6 Mhz and 54 Mhz." (emphasis added)).

[143] *See, e.g.*, '718 patent, 10:60-67; figure 3.

[144] If the parties wish to present arguments to the court concerning the upper limit of the phrase "high frequency range" for any of the patents-in-suit, they may notify the court of this desire and a briefing schedule will be determined at that time. If the parties ultimately submit further briefing on the upper limit of "high frequency band" as claimed in the '596 line of patents, the court directs the parties' attention to the following language in those patents:

> At higher frequencies, the 10 dB advantage of a 15 MHz FM signal may not be sufficient to overcome the extra attenuation. The solution, in that case, is to use wider FM bandwidths which produce a greater SNR improvement at the receiver. This, of course, brings one to even higher frequencies more quickly with each channel that is added. Because of this, the inventors expect that higher frequencies will not be useful beyond some point, and *certainly not beyond 1000 Mhz*." '596 patent 21:12-20 (emphasis added). Referencing this statement, the specification acknowledges that "[a]s mentioned above, *there is an upper limit* to the frequencies that can be useful for transmission of signals across a transmission path of a given length." '596 patent

VI. CONCLUSION

For the reasons set forth above, the court modifies is prior construction of the disputed terms of the patents in suit as follows:

Claim Language	Court's Construction
"a high frequency band of frequencies above the highest frequency of the telephone voice band"; "high frequency band"; and "high band of frequencies" ('596 line of patents)	Frequencies above the telephone voice band between 0.25 MHz and an undetermined upper limit
"a high band of frequencies above a telephone voice band of frequencies"; "high frequency band"; and "high band of frequencies" ('718 patent)	Frequencies above the telephone voice band between 6 MHz and an undetermined upper limit

21:62-64 (emphasis added).
Any submissions should address this language and its effect on the parties' analyses.